

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-5 (Cancelled).

Claim 6 (Currently amended): An ultrasonic sensor ~~characterized by~~ comprising:

a  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> single crystal film epitaxially grown on a semiconductor single crystal substrate[[,]];

an epitaxial single crystal electrically conductive thin film disposed on the  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> single crystal film[[,]]; and

a highly oriented ferroelectric thin film disposed on the epitaxial single crystal electrically conductive thin film[[,]]; and

an upper electrode disposed on the ferroelectric thin film[[,]]; wherein the semiconductor single crystal substrate is subjected to a treatment for adjusting a resonant frequency and an ultrasonic wave is detected.

Claim 7 (Currently amended): The ultrasonic sensor according to Claim 6, ~~characterized in that~~ wherein the semiconductor single crystal substrate has an SOI structure.

Claims 8-11 (Cancelled).

Claim 12 (New): The ultrasonic sensor according to Claim 6, wherein the semiconductor single crystal substrate is a Si single crystal.

Claim 13 (New): The ultrasonic sensor according to Claim 12, wherein the  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> single crystal film epitaxially grown on a semiconductor single crystal substrate is grown on a (100) face of the Si single crystal.

Claim 14 (New): The ultrasonic sensor according to Claim 6 wherein the highly oriented ferroelectric thin film disposed on the epitaxial single crystal electrically conductive thin film comprises one selected from the group consisting of BaMgF<sub>4</sub>, Bi<sub>4</sub>Ti<sub>3</sub>O<sub>12</sub>, (Bi,La)<sub>4</sub>Ti<sub>3</sub>O<sub>12</sub>, BaTiO<sub>3</sub>, Ba<sub>x</sub>Sr<sub>1-x</sub>TiO<sub>3</sub>, SrBi<sub>2</sub>Ta<sub>2</sub>O<sub>9</sub>, PbTiO<sub>3</sub>, Pb<sub>y</sub>La<sub>1-y</sub>Zr<sub>x</sub>Ti<sub>1-x</sub>O<sub>3</sub>, and ZnO.

Claim 15 (New): The ultrasonic sensor according to Claim 6 wherein the upper electrode disposed on the ferroelectric thin film comprises gold black.